IN THE CLAIMS

Please amend the claims as follows:

Claims 1-14 (Cancelled)

Claim 15 (Previously Presented): A wavelength division multiplexing and optical transmission apparatus, comprising:

an optical multiplexer configured to transmit a multiplexed optical signal including a non-modulated spectrum slice optical signal and a plurality of modulated optical signals;

a plurality of optical transmitting units configured to output the plurality of modulated optical signals to respective input ports of the optical multiplexer, each of the optical transmitting units configured to modulate a unique wavelength with a plurality of data signals and to output a respective modulated optical signal occupying a respective portion of a signal band; and

a dummy optical signal source device configured to generate the non-modulated spectrum slice optical signal, including:

an input optical amplifier device having an input terminated at no reflection to cut off any input signal and having an output configured to output an amplified spontaneous emission light signal,

a light dividing element connected to the output of the optical amplifier device and configured to output plural signals related to the amplified spontaneous emission light signal,

at least a first and second plurality of bandpass filters having adjacent filter pass bands, each bandpass filter having a respective bandpass characteristic and each arranged to receive a respective one of the plural signals output from the light dividing element and configured to output respective non-modulated spectrum slice

optical signal components, a first non-modulated spectrum slice optical signal component being adjacent on a high side to the signal band, a second non-modulated spectrum slice optical signal component being adjacent on a low side to the signal band,

at least a first and second dummy signal optical multiplexer, each dummy signal optical multiplexer having inputs connected to outputs of the plurality of bandpass filters, respectively,

at least a first and second output optical amplifier, each having an input connected to an output of a respective one of the dummy signal optical multiplexers, and having respective outputs,

an amplification controller configured to modify a gain of at least one non-modulated spectrum slice optical signal component in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components, and

a dummy signal optical multiplexer connecting the respective outputs of the output optical amplifiers to the optical multiplexer.

Claim 16 (Previously Presented): The wavelength division multiplexing and optical transmission apparatus of Claim 15, wherein the dummy optical signal source device further includes

a third, fourth and fifth plurality of bandpass filters having adjacent filter pass bands, and arrange to receive respective ones of the plural signals output from the light dividing element,

a third, fourth and fifth dummy signal optical multiplexer connected to a respective one of the third, fourth and fifth plurality of bandpass filters,

a third, fourth and fifth output optical amplifier connected to a respective one of the third, fourth and fifth dummy signal optical multiplexer, the third and fifth output optical amplifier configured to amplify at a heightened amplification level when the fourth output optical amplifier does not output a corresponding non-modulated spectrum slice optical signal so as to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signals input to the dummy signal optical multiplexer.

Claim 17 (Previously Presented): A wavelength division multiplexing and optical transmission method, comprising:

transmitting a multiplexed optical signal including a non-modulated spectrum slice optical signal and a plurality of modulated optical signals, the step of transmitting including

modulating at least one wavelength with a plurality of data signals and outputting a signal occupying a respective portion of a signal band; and

generating the non-modulated spectrum slice optical signal, including:

outputting an amplified spontaneous emission light signal with an input optical amplifier device having an input terminated at no reflection to cut off any input signal,

dividing the amplified spontaneous emission light signal into plural spontaneous emission light signals,

bandpass filtering the plural spontaneous emission light signals with a first and second plurality of bandpass filters having adjacent filter pass bands, each bandpass filter having a respective bandpass characteristic to output a respective first and second non-modulated spectrum slice optical signal

components, the first non-modulated spectrum slice optical signal component being adjacent on a high side to the signal band, the second non-modulated spectrum slice optical signal component being adjacent on a low side to the signal band,

multiplexing and amplifying the first non-modulated spectrum slice optical signal component,

multiplexing and amplifying the second non-modulated spectrum slice optical signal component,

multiplexing the first and second amplified non-modulated spectrum slice optical signal components to generate the non-modulated spectrum slice optical signal, and

modifying a gain of at least one non-modulated spectrum slice optical signal component in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components, when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components.

Claim 18 (Previously Presented): The method of Claim 17, further comprising:

bandpass filtering the plural spontaneous emission light signals with a third, fourth and fifth plurality of bandpass filters having adjacent filter pass bands to generate third, fourth and fifth non-modulated spectrum slice optical signal components,

multiplexing and amplifying the third, fourth and fifth non-modulated spectrum slice optical signal components, wherein the third and fifth non-modulated spectrum slice optical signal components are amplified at a heightened amplification level when no signal is

available for amplification so as to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal.

Claim 19 (New): A wavelength division multiplexing and optical transmission apparatus, comprising:

an optical multiplexing means for transmitting a multiplexed optical signal including a non-modulated spectrum slice optical signal and a plurality of modulated optical signals;

a plurality of optical transmitting means for outputting the plurality of modulated optical signals to respective input ports of the optical multiplexing means, each optical transmitting means modulating a unique wavelength with a plurality of data signals and outputting a respective modulated optical signal occupying a respective portion of a signal band; and

a dummy optical signal source means for generating the non-modulated spectrum slice optical signal, including:

an input optical amplifier means for outputting an amplified spontaneous emission light signal, the input optical amplifier means having an input terminated at no reflection to cut off any input signal and having an output,

a light dividing means for outputting plural signals related to the amplified spontaneous emission light signal, the light diving means connected to the output of the optical amplifier means,

a bandpass filtering means for receiving the plural signals output from the light dividing means and outputting non-modulated spectrum slice optical signal components, a first non-modulated spectrum slice optical signal component being adjacent on a high side to the signal band and a second non-modulated spectrum slice optical signal component being adjacent on a low side to the signal band, the

bandpass filtering means having adjacent filter pass bands and respective bandpass characteristics;

a dummy signal optical multiplexing means for multiplexing a dummy signal and the non-modulated spectrum slice optical signal components, the dummy signal optical multiplexing means having inputs connected to outputs of the bandpass filtering means,

an output optical amplifying means for amplifying an output of the dummy signal optical multiplexing means, the output optical amplifying means having an input connected to an output of the dummy signal optical multiplexing means,

an amplification controlling means for modifying a gain of at least one non-modulated spectrum slice optical signal component in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components, and

an output optical multiplexing means for multiplexing the output of the output optical amplifying means, the output optical multiplexing means connected between the output optical amplifying means and the optical multiplexing means for transmitting.